***** SEARCH RESULTS *****
(EXACT COMPOSITION)

```
=> d his l67

     (FILE 'HCAPLUS' ENTERED AT 11:47:47 ON 08 AUG 2008)
L67            1 S L64-L66
                 SAVE TEMP L67 WEI291HCAP1/A

=> d que l67
L30       172743 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CATALYSTS+OLD,UF/CT
L31        91748 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "FUEL CELLS"+OLD,UF/CT
L57         8766 SEA FILE=REGISTRY ABB=ON  PLU=ON  5-60 PT/MAC
L58         9317 SEA FILE=REGISTRY ABB=ON  PLU=ON  5-50 IN/MAC
L59         6809 SEA FILE=REGISTRY ABB=ON  PLU=ON  20-70 W/MAC
L60       132961 SEA FILE=REGISTRY ABB=ON  PLU=ON  20-70 FE/MAC
L61        15018 SEA FILE=REGISTRY ABB=ON  PLU=ON  20-70 MN/MAC
L62          215 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L57 AND L58
L63           41 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L62 AND ((L59 OR L60 OR L61))

L64            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L63 AND FUEL CELL#
L65            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L63 AND L30
L66            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L63 AND L31
L67            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L64 OR L65 OR L66)


=> d l67 ibib ab

L67  ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2005:140770  HCAPLUS  Full-text
DOCUMENT NUMBER:          142:243595
TITLE:                    Platinum-indium-iron/tungsten/manganese fuel
                          cell electrocatalyst
INVENTOR(S):              Devenney, Martin; Gorer, Alexander; Strasser, Peter;
                          He, Ting; Oyanagi, Hiroyuki; Giaquinta, Daniel M.;
                          Fan, Qun; Chondroudis, Konstantinos
PATENT ASSIGNEE(S):       Symyx Technologies, Inc., USA; Honda Giken Kogyo
                          Kabushiki Kaisha; MEMC Electronic Materials, Inc.
SOURCE:                   U.S. Pat. Appl. Publ., 24 pp.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ----------------    ----   --------    --------------------    --------
     US 20050037920       A1    20050217    US 2004-849291          20040519
     US 20060019825       A2    20060126
PRIORITY APPLN. INFO.:                      US 2003-473565P     P   20030527
AB    A fuel cell electrocatalyst contains platinum, indium, and at least one of
      tungsten, iron, and manganese.  The catalyst consists essentially of Pt, In,
      and ≥1 of W, Fe, and Mn.  The catalyst is an alloy comprising Pt, In, and ≥1
      W, Fe, and Mn.
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***** SEARCH RESULTS *****
(BROAD SEARCH)

⇨ d his l40

(FILE 'HCAPLUS' ENTERED AT 10:29:33 ON 08 AUG 2008)
L40 29 S L39 OR L33

⇨ d que l40
L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON PLATINUM/CN
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-06-4/RN
L4 1 SEA FILE=REGISTRY ABB=ON PLU=ON L2 OR L3
L5 1 SEA FILE=REGISTRY ABB=ON PLU=ON INDIUM/CN
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-74-6/RN
L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON L5 OR L6
L8 1 SEA FILE=REGISTRY ABB=ON PLU=ON TUNGSTEN/CN
L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-33-7/RN
L10 1 SEA FILE=REGISTRY ABB=ON PLU=ON L8 OR L9
L11 1 SEA FILE=REGISTRY ABB=ON PLU=ON IRON/CN
L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-89-6/RN
L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON L11 OR L12
L14 1 SEA FILE=REGISTRY ABB=ON PLU=ON MANGANESE/CN
L15 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-96-5 /RN
L16 1 SEA FILE=REGISTRY ABB=ON PLU=ON L14 OR L15
L18 246603 SEA FILE=HCAPLUS ABB=ON PLU=ON (PLATINUM OR L4)
L19 228709 SEA FILE=HCAPLUS ABB=ON PLU=ON INDIUM OR L7
L20 216469 SEA FILE=HCAPLUS ABB=ON PLU=ON TUNGSTEN OR L10
L21 1126517 SEA FILE=HCAPLUS ABB=ON PLU=ON IRON OR L13
L22 440019 SEA FILE=HCAPLUS ABB=ON PLU=ON MANGANESE OR L16
L27 9950 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND L19
L28 5174 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 AND (L20 OR L21 OR L22)
L30 172743 SEA FILE=HCAPLUS ABB=ON PLU=ON CATALYSTS+OLD,UF/CT
L31 91748 SEA FILE=HCAPLUS ABB=ON PLU=ON "FUEL CELLS"+OLD,UF/CT
L32 192 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L30
L33 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND L31
L38 9035 SEA FILE=HCAPLUS ABB=ON PLU=ON ELECTROCATALYST?
L39 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L38 AND L33
L40 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L39 OR L33

⇨ d his l51

(FILE 'COMPENDEX, INSPEC, ENERGY, SCISEARCH' ENTERED AT 11:07:07 ON 08 AUG 2008)
L51 2 S L50 AND (FUEL CELL#)

⇨ d que l51
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-06-4/RN
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-74-6/RN
L41 194007 SEA PLATINUM OR L3
L42 243968 SEA INDIUM OR L6
L43 2545 SEA L41 AND L42
L44 1193749 SEA TUNGSTEN OR IRON OR MANGANESE
L45 374 SEA L43 AND L44
L50 31 SEA L45 AND CATALYST?
L51 2 SEA L50 AND (FUEL CELL#)

⇨ dup rem l40 l51
FILE 'HCAPLUS' ENTERED AT 11:14:59 ON 08 AUG 2008

FILE 'ENERGY' ENTERED AT 11:14:59 ON 08 AUG 2008

FILE 'SCISEARCH' ENTERED AT 11:14:59 ON 08 AUG 2008

PROCESSING COMPLETED FOR L40
PROCESSING COMPLETED FOR L51
L56 31 DUP REM L40 L51 (0 DUPLICATES REMOVED)
ANSWERS '1-29' FROM FILE HCAPLUS
ANSWER '30' FROM FILE ENERGY
ANSWER '31' FROM FILE SCISEARCH

⇨ d l56 1-29 ibib abs hitind; d l56 30-31 ibib ab ind

L56 ANSWER 1 OF 31 HCAPLUS
ACCESSION NUMBER: 2008:508637 HCAPLUS Full-text
DOCUMENT NUMBER: 148:475982
TITLE: Electrocatalyst compositions for fuel cells
INVENTOR(S): Jang, Bor Z.; Zhamu, Aruna; Guo, Jiusheng
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 25pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080096093	A1	20080424	US 2006-582912	20061019
PRIORITY APPLN. INFO.:			US 2006-582912	20061019

AB A precursor electro-catalyst composition for producing a fuel cell electrode is disclosed. The precursor composition comprises (a) a mol. Metal precursor dissolved or dispersed in a liquid medium and (b) a polymer dissolved or dispersed in the liquid medium, wherein the polymer is both ion-conductive and electron-conductive with an electronic conductivity no less than 10-4 S/cm (preferably greater than 10-2 S/cm) and ionic conductivity no less than 10-5 S/cm (preferably greater than 10-3 S/cm). Also disclosed is an electro-catalyst composition derived from this precursor composition, wherein the mol. Metal precursor is converted by heat and/or energy beam to form nanometer-scaled catalyst particles and the polymer forms a matrix that is in phys. Contact with the catalyst particles, coated on the catalyst particles, and/or surrounding the catalyst particles as a dispersing matrix with the catalyst particles dispersed therein when the liquid is removed. The fuel cell comprising such a composition in an electrode exhibits a superior power output.
INCL -429; -429; -502
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 67
ST fuel cell electrocatalyst compn
IT Nanotubes
(carbon; electrocatalyst compns. For fuel cells)
IT Polymers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(cyclic, bicyclic, sulfonated; electrocatalyst compns. For fuel cells)

IT Conducting polymers
Membrane electrodes
Pore
Porogens
(electrocatalyst compns. For fuel cells)
IT Carbon black, uses
Carbon fibers, uses
Rare earth metals, uses
Transition metal alloys
Transition metal carbides
Transition metal nitrides
Transition metal oxides
Transition metals, uses
RL: CAT (Catalyst use); USES (Uses)
(electrocatalyst compns. For fuel cells)
IT Fluoropolymers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)
IT Halides
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)
IT Metal alkoxides
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)
IT Organometallic compounds
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)
IT Polybenzimidazoles
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)
IT Catalysts
(electrocatalysts; electrocatalyst compns. For fuel cells)
IT Carbon fibers, uses
RL: CAT (Catalyst use); USES (Uses)
(graphite, nanofibers; electrocatalyst compns. For fuel cells)
IT Nitrates, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal; electrocatalyst compns. For fuel cells)
IT Sulfonic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(perfluorosulfonic acid polymers; electrocatalyst compns. For fuel cells)
IT Platinum-group metal compounds
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(platinates, ammonium; electrocatalyst compns. For fuel cells)
IT Polyketones
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyether-, sulfonated; electrocatalyst compns. For fuel cells)
IT Polysulfones, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyether-polyketone-, sulfonated; electrocatalyst compns. For fuel cells)
IT Polyketones
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyether-polysulfone-, sulfonated; electrocatalyst compns.

For fuel cells)

IT Polyethers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyketone-, sulfonated; electrocatalyst compns. For fuel cells)

IT Polyethers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyketone-polysulfone-, sulfonated; electrocatalyst compns. For fuel cells)

IT Fuel cells
(proton exchange membrane; electrocatalyst compns. For fuel cells)

IT Carboxylic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(salts, metal; electrocatalyst compns. For fuel cells)

IT Fluoropolymers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfo-containing, perfluoro; electrocatalyst compns. For fuel cells)

IT Polyanilines
Polyimides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonated; electrocatalyst compns. For fuel cells)

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses 7782-42-5, Graphite, uses 12779-05-4
RL: CAT (Catalyst use); USES (Uses)
(electrocatalyst compns. For fuel cells)

IT 7439-88-5D, Iridium, complex compds. 7439-88-5D, Iridium, salts 7440-05-3D, Palladium, complex compds. 7440-05-3D, Palladium, salts 7440-06-4D, Platinum, complex compds. 7440-06-4D, Platinum, salts 7440-18-8D, Ruthenium, complex compds. 7440-18-8D, Ruthenium, salts
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(electrocatalyst compns. For fuel cells)

IT 9002-83-9D, Polychlorotrifluoroethylene, sulfonated 9002-84-0D, Ptfe, sulfonated 9002-84-0D, Ptfe, sulfonated perfluoroalkoxy _erives. 9003-53-6D, Polystyrene, sulfonated 9003-55-8D, Butadiene-styrene copolymer, sulfonated 24937-79-9D, PVDF, sulfonated 25038-71-5D, Ethylene-tetrafluoroethylene copolymer, sulfonated 25067-11-2D, Perfluoroethylene-propylene copolymer, sulfonated 25101-45-5D, Ethylene-chlorotrifluoroethylene copolymer, sulfonated 25190-89-0D, Hexafluoropropene-tetrafluoroethylene-vinylidene fluoride copolymer, sulfonated 25233-30-1D, Polyaniline, sulfonated 25233-34-5D, Polythiophene, sulfonated 30604-81-0D, Polypyrrole, sulfonated 31694-16-3D, sulfonated
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrocatalyst compns. For fuel cells)

IT 25233-34-5DP, Polythiophene, alkyl derivative

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrocatalyst compns. For fuel cells)
IT 7440-44-0, Carbon, uses
RL: CAT (Catalyst use); USES (Uses)
(nanotubes; electrocatalyst compns. For fuel cells)

L56 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:349105 HCAPLUS Full-text
DOCUMENT NUMBER: 148:359053
TITLE: Process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly
INVENTOR(S): Jang, Bor Z.; Zhamu, Aruna; Guo, Jiusheng
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 24pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080070777	A1	20080320	US 2006-522580	20060919
PRIORITY APPLN. INFO.:			US 2006-522580	20060919

AB Disclosed are processes for producing a fuel cell electrode and a membrane electrode assembly. In one preferred embodiment, the process comprises (a) preparing a suspension of catalyst particles dispersed in a liquid medium containing a polymer dissolved or dispersed therein; (b) dispensing the suspension onto a primary surface of a substrate selected from an electronically conductive catalyst-backing layer (gas diffuser plate) or a solid electrolyte membrane; and (c) removing the liquid medium to form the electrode that is connected to or integral with the substrate, wherein the polymer is both ion-conductive and electron-conductive with an electronic conductivity no less than 10-4 S/cm and ionic conductivity no less than 10-5 S/cm and the polymer forms a coating in phys. Contact with the catalyst particles or coated on the catalyst particles.

INCL -502; -429; -429
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 67
IT Catalysts
(electrocatalysts; process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly)
IT Platinum-group metal compounds
RL: RCT (Reactant); RACT (Reactant or reagent)
(platinates, ammonium; process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly)
IT Conducting polymers
Fuel cells
Inks
Membrane electrodes
Nanoparticles
(process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly)
IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium,

uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses 12623-52-8
RL: CAT (Catalyst use); USES (Uses)
(process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly)

IT 7439-88-5D, Iridium, complex compds. 7439-88-5D, Iridium, salts 7440-05-3D, Palladium, complex compds. 7440-05-3D, Palladium, salts 7440-06-4D, Platinum, complex compds. 7440-06-4D, Platinum, salts 7440-18-8D, Ruthenium, complex compds. 7440-18-8D, Ruthenium, salts
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for producing fuel cell electrode, catalyst-coated membrane and membrane-electrode assembly)

L56 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:125928 HCAPLUS Full-text
DOCUMENT NUMBER: 148:218532
TITLE: Method of fabrication of electrode for fuel cell and membrane electrode composite
INVENTOR(S): Tamura, Jun; Nakano, Yoshihiko; Mei, Wu; Mikoshiba, Satoshi
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan
SOURCE: U.S. Pat. Appl. Publ., 23pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080026282	A1	20080131	US 2007-778937	20070717
JP 2008034300	A	20080214	JP 2006-208241	20060731

PRIORITY APPLN. INFO.: JP 2006-208241 A 20060731

AB A fuel cell, which can supply stable output even at elevated temps. And can maintain its power generation performance over a long period of time, can be realized by an electrode for a fuel cell comprising a catalyst layer formed of a catalyst composite and a binder, the catalyst composite comprising a proton-conductive inorg. Oxide and an oxidation-reduction catalyst phase supported on the proton-conductive inorg. Oxide, the proton-conductive inorg. Oxide comprising a catalyst carrier selected from tin-doped In2O3, fluorine-doped SnO2, and antimony-doped SnO2 and an oxide particle phase chemical bonded to the surface of the catalyst carrier. The catalyst composite is manufactured by dispersing a catalyst carrier in a solution containing a material as a starting material for an oxide particle phase, heat treating the dispersion to form a proton-conductive inorg. Oxide, further dispersing the proton-conductive inorg. Oxide in a catalyst precursor-containing solution, and subjecting the dispersion to heat treatment or Ph adjustment to deposit a catalyst phase.

INCL -429; -429; -429; -502
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67
IT Catalysts
(electrocatalysts; method of fabrication of electrode for

fuel cell and membrane electrode composite)

IT Catalyst supports
Fuel cell electrodes
Fuel cells
Membrane electrodes
(method of fabrication of electrode for fuel cell and membrane electrode composite)

IT 1312-43-2P, Indium oxide (In2O3)
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(Sn-doped; method of fabrication of electrode for fuel cell and membrane electrode composite)

IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-33-7, Tungsten, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 12673-86-8, Antimony tin oxide 12779-05-4 50926-11-9, Ito 98743-33-0, Tin fluoride oxide
RL: CAT (Catalyst use); USES (Uses)
(method of fabrication of electrode for fuel cell and membrane electrode composite)

L56 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1114218 HCAPLUS Full-text
DOCUMENT NUMBER: 147:430233
TITLE: Preparation of nanostructured metals and metal compounds and their uses
INVENTOR(S): Hu, Yong-Sheng; Guo, Yu-Guo; Balaya, Palani; Maier, Joachim; Hore, Sarmimala
PATENT ASSIGNEE(S): Max-Planck-Gesellschaft zur Foerderung der Wissenschaften, Germany
SOURCE: PCT Int. Appl., 44pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007110246	A2	20071004	WO 2007-EP2826	20070329
WO 2007110246	A3	20080117		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.: EP 2006-6529 A 20060329

AB A method for the preparation of materials comprises the steps of: (a) taking a first material comprising a compound of a first metal or of a first metal

alloy, (b) inserting the first material into an electrochem. Cell as a first electrode, the electrochem. Cell including a second electrode including a second metal different from a metal incorporated in the first material and an electrolyte adapted to transport the second metal to the first electrode and insert it into the first material by a current flowing in an external circuit resulting in the formation of a compound of the second metal in the first electrode material, the method being characterized by the step of treating the first electrode material after formation of the compound of the second metal to chemical remove at least some of the compound of the second metal to leave a material with a nanoporous structure.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49, 56, 72

IT Fuel cells
(direct methanol; preparation of nanostructured metals and metal compds. And
their uses)

IT Catalysts
(electrocatalysts; preparation of nanostructured metals and metal compds. And their uses)

IT 1314-15-4P, Platinum oxide (PtO2) 12036-10-1P, Ruthenium oxide (RuO2) 12057-24-8P, Lithium oxide (Li2O), preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of nanostructured metals and metal compds. And their uses)

IT 7429-90-5P, Aluminum, uses 7439-88-5P, Iridium, uses 7439-89-6P, Iron, uses 7439-92-1P, Lead, uses 7439-93-2P, Lithium, uses 7439-95-4P, Magnesium, uses 7439-96-5P, Manganese, uses 7439-98-7P, Molybdenum, uses 7440-02-0P, Nickel, uses 7440-03-1P, Niobium, uses 7440-04-2P, Osmium, uses 7440-05-3P, Palladium, uses 7440-06-4P, Platinum, uses 7440-09-7P, Potassium, uses 7440-15-5P, Rhenium, uses 7440-16-6P, Rhodium, uses 7440-18-8P, Ruthenium, uses 7440-22-4P, Silver, uses 7440-23-5P, Sodium, uses 7440-25-7P, Tantalum, uses 7440-28-0P, Thallium, uses 7440-31-5P, Tin, uses 7440-32-6P, Titanium, uses 7440-33-7P, Tungsten, uses 7440-36-0P, Antimony, uses 7440-43-9P, Cadmium, uses 7440-46-2P, Cesium, uses 7440-47-3P, Chromium, uses 7440-48-4P, Cobalt, uses 7440-50-8P, Copper, uses 7440-57-5P, Gold, uses 7440-58-6P, Hafnium, uses 7440-62-2P, Vanadium, uses 7440-66-6P, Zinc, uses 7440-67-7P, Zirconium, uses 7440-69-9P, Bismuth, uses 7440-70-2P, Calcium, uses 7440-74-6P, Indium, uses
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of nanostructured metals and metal compds. And their uses)

L56 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:941892 HCAPLUS Full-text
DOCUMENT NUMBER: 147:270794
TITLE: Carbon-encased metal nanoparticles and sponges, methods of synthesis, and methods of use
INVENTOR(S): Lian, Kun; Wu, Qinglin
PATENT ASSIGNEE(S): Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, USA
SOURCE: PCT Int. Appl., 61pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2007095454	A2	20070823	WO 2007-US61862	20070208
WO 2007095454	A3	20080207		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.: US 2006-772325P P 20060210

AB The authors disclose novel metallic nanoparticles coated with a thin protective carbon shell and three-dimensional nano-metallic sponges; methods of preparation of the nanoparticles; and uses for these novel materials, including wood preservation, strengthening of polymer and fiber/polymer building materials, and catalysis. Wood may be impregnating with carbon-shell nanoparticles with a metallic core selected from aluminum, magnesium, copper, zinc, and chromium in an amount sufficient to inhibit fungal decay or destruction of the wood by insects. Alternatively, the nanoparticles may be applied to a living woody plant in an amount sufficient to cause the plant to take up the nanoparticles and to incorporate enough nanoparticles in the woody tissues to inhibit the growth of mold in wood produced from the plant or to inhibit destruction of the wood by termites and other insects. Thus, cotton fiber was soaked in a copper sulfate solution After the cotton was saturated, extra solvent was removed. Carbonization was carried out at .apprx.350° under nitrogen for .apprx.2 h to obtain copper-carbon core-shell nanoparticles. Treating wood samples with a 1% aqueous suspension of such nanoparticles by using a standard vacuum and pressure treatment greatly inhibited termite attacks on the samples when they were subsequently challenged with Formosan subterranean termites (Coptotermes formosanus Shiraki).

IC ICM C09K

CC 5-4 (Agrochemical Bioregulators)
Section cross-reference(s): 37, 43, 52, 56, 57, 59

IT Catalysts
Fuel cells
(metallic nanosponges for catalytically generating energy in fuel cell)

IT 7429-90-5, Aluminum, biological studies 7429-91-6, Dysprosium, biological studies 7439-88-5, Iridium, biological studies 7439-89-6, Iron, biological studies 7439-91-0, Lanthanum, biological studies 7439-92-1, Lead, biological studies 7439-94-3, Lutetium, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-97-6, Mercury, biological studies 7439-98-7, Molybdenum, biological studies 7439-99-8, Neptunium, biological studies 7440-00-8, Neodymium, biological studies 7440-02-0, Nickel, biological studies 7440-03-1, Niobium, biological studies 7440-04-2, Osmium, biological studies 7440-05-3, Palladium, biological studies 7440-06-4, Platinum, biological studies 7440-07-5, Plutonium, biological studies 7440-08-6, Polonium, biological studies 7440-10-0, Praseodymium, biological studies 7440-12-2, Promethium, biological studies 7440-13-3, Protactinium, biological studies 7440-14-4, Radium, biological studies 7440-15-5, Rhenium, biological studies 7440-16-6, Rhodium, biological studies 7440-18-8, Ruthenium, biological studies 7440-19-9, Samarium, biological studies 7440-20-2, Scandium, biological studies 7440-21-3, Silicon, biological studies 7440-22-4, Silver,

biological studies 7440-24-6, Strontium, biological studies 7440-25-7, Tantalum, biological studies 7440-26-8, Technetium, biological studies 7440-27-9, Terbium, biological studies 7440-28-0, Thallium, biological studies 7440-29-1, Thorium, biological studies 7440-30-4, Thulium, biological studies 7440-31-5, Tin, biological studies 7440-32-6, Titanium, biological studies 7440-33-7, Tungsten, biological studies 7440-34-8, Actinium, biological studies 7440-35-9, Americium, biological studies 7440-36-0, Antimony, biological studies 7440-38-2, Arsenic, biological studies 7440-39-3, Barium, biological studies 7440-41-7, Beryllium, biological studies 7440-42-8, Boron, biological studies 7440-43-9, Cadmium, biological studies 7440-45-1, Cerium, biological studies 7440-47-3, Chromium, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-52-0, Erbium, biological studies 7440-53-1, Europium, biological studies 7440-54-2, Gadolinium, biological studies 7440-55-3, Gallium, biological studies 7440-56-4, Germanium, biological studies 7440-57-5, Gold, biological studies 7440-58-6, Hafnium, biological studies 7440-60-0, Holmium, biological studies 7440-61-1, Uranium, biological studies 7440-62-2, Vanadium, biological studies 7440-64-4, Ytterbium, biological studies 7440-65-5, Yttrium, biological studies 7440-66-6, Zinc, biological studies 7440-67-7, Zirconium, biological studies 7440-69-9, Bismuth, biological studies 7440-70-2, Calcium, biological studies 7440-74-6, Indium, biological studies 13494-80-9, Tellurium, biological studies
RL: BUU (Biological use, unclassified); CAT (Catalyst use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); BIOL (Biological study); PROC (Process); USES (Uses)
(metal nanoparticles in carbon shell and nanosponges and their preparation and use in wood protection, strengthening of polymer and fiber/polymer building materials, and catalysis)

L56 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:488628 HCAPLUS Full-text
DOCUMENT NUMBER: 146:465323
TITLE: Process for producing catalyst layer for polymer electrolyte fuel cell
INVENTOR(S): Okumura, Yoshinobu; Yamada, Kazuhiro; Miyazaki, Kazuya; Shibata, Masaaki
PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
SOURCE: U.S. Pat. Appl. Publ., 16pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070099066	A1	20070503	US 2006-552867	20061025
JP 2007123043	A	20070517	JP 2005-313400	20051027
PRIORITY APPLN. INFO.:			JP 2005-313400 A	20051027

AB An electrode catalyst layer, capable of having high catalytic activity in a small thickness, for use in a polymer electrolyte fuel cell has an entangled structure (cobweb-like structure). The electrode catalyst layer is produced through a process including a step of forming a thin film with a film-forming material containing a combination of platinum, oxygen, and nitrogen, a combination of platinum, oxygen, and boron, or a combination of platinum, oxygen, nitrogen, and boron, and a step of forming a catalyst material which has the entangled structure and principally contains platinum as a main component by reducing the film-forming material.

INCL 429040000; 429044000; 502101000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 67
IT Catalysts
(electrocatalysts; process for producing catalyst layer for polymer electrolyte fuel cell)
IT Fuel cells
(polymer electrolyte; process for producing catalyst layer for polymer electrolyte fuel cell)
IT Platinum alloy, base
RL: CAT (Catalyst use); USES (Uses)
(process for producing catalyst layer for polymer electrolyte fuel cell)
IT 1303-86-2, Boron oxide, uses 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-44-0, Carbon, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses 173958-72-0, Nitrogen platinum oxide 475644-48-5, Hispec 4000 935546-47-7
RL: CAT (Catalyst use); USES (Uses)
(process for producing catalyst layer for polymer electrolyte fuel cell)

L56 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:618606 HCAPLUS Full-text
DOCUMENT NUMBER: 147:12976
TITLE: Stable electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports and polymer electrolyte fuel cells equipped therewith
INVENTOR(S): Miyazaki, Kazuya
PATENT ASSIGNEE(S): Canon Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007141626	A	20070607	JP 2005-333240	20051117

PRIORITY APPLN. INFO.: JP 2005-333240 20051117
AB The electrodes comprise catalysts, nanostructured supports, and nonstoichiometric titanium oxide intermediate layers doped with Pt, Al, Si, V, Cr, Fe, Co, Ni, Cu, Zn, Ge, Zr, Nb, Mo, Ru, Rh, Pd, Ag, In, Sn, Hf, Ta, W, Os, Ir, Au, La, Ce, and/or Nd. Thus, Magneli-phase titanium oxide layer and Pt-Pd (Pd 60 atomic%) catalyst layer were successively formed on graphite nanofiber layer (grown on quartz substrate) and treated under 10 kPa H at 600° for 10

min, in order to accelerate Pt-Pd alloying, size reduction, and dissoln. Into the titanium oxide layer, to give electrode film.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67, 72

ST PEFC electrode metal doped nonstoichiometric titania intermediate layer; platinum electrocatalyst dissolved nonstoichiometric titania intermediate layer PEFC electrode; nanostructured support PEFC electrocatalyst nonstoichiometric titania intermediate layer; polymer electrolyte fuel cell anode cathode platinum electrocatalyst

IT Catalysts
(electrocatalysts; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite, nanofibers, supports; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT Fuel cells
(polymer electrolyte; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT Fuel cell anodes
Fuel cell cathodes
Fuel cell electrodes
(stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT Nanofibers
Nanostructures
(supports; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT 937720-89-3, Titanium oxide (Ti3-8O5-15)
RL: TEM (Technical or engineered material use); USES (Uses)
(Magneli phase, intermediate layers; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT 12720-14-8, Palladium 60, platinum 40 (atomic) 39305-53-8, Cobalt 50, platinum 50 (atomic)
RL: CAT (Catalyst use); USES (Uses)
(electrocatalysts; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT 13463-67-7D, Titanium oxide, nonstoichiometric
RL: TEM (Technical or engineered material use); USES (Uses)
(intermediate layers; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT 7782-42-5P, Graphite, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(nanofibers, supports; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses

7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)
(titanium oxide intermediate layers doped with; stable PEFC electrodes having metal-doped nonstoichiometric titania intermediate layers between electrocatalyst layers and nanostructured supports)

L56 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:405517 HCAPLUS Full-text
DOCUMENT NUMBER: 146:405159
TITLE: Fuel-cell electrodes, membrane-electrode assemblies, and fuel cells
INVENTOR(S): Tamura, Atsushi; Nakano, Yoshihiko; Ume, Takeshi
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 35pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007095585	A	20070412	JP 2005-285594	20050929
CN 1941466	A	20070404	CN 2006-10139603	20060925
US 20070082257	A1	20070412	US 2006-537219	20060929
PRIORITY APPLN. INFO.:			JP 2005-285594 A	20050929

AB The title electrodes are equipped with catalyst layers having proton-conducting inorg. Oxide super strong acid films containing X chosen from Ti, Zr, Si, Sn, Hf, Ge, Ga, In, Ce, Nb, and Al and Y chosen from W, Mo, Cr, B and V and redox metal catalysts or their supported catalysts partially covered with the films. Alternatively, the redox metal catalysts or their supported catalysts are bonded by binders containing the proton-conducting inorg. Oxide super strong acids. The title fuel cells, equipped with membrane-electrode assemblies (MEA) containing the above electrodes, provide stable power output at temperature from room temperature to ≈150°.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

IT Catalysts
(electrocatalysts; electrode catalysts containing proton-conducting inorg. Oxide super strong acids for MEA and fuel cells)

IT Fuel cells
(polymer electrolyte; electrode catalysts containing proton-conducting inorg. Oxide super strong acids for MEA and fuel cells)

IT Fuel cells
(solid electrolyte; electrode catalysts containing proton-conducting inorg. Oxide super strong acids for MEA and fuel cells)

IT 7440-06-4, Platinum, uses 12779-05-4
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(catalysts; electrode catalysts containing proton-conducting inorg. Oxide super strong acids for MEA and fuel cells)

IT 11075-35-7, Titanium vanadium oxide 11113-92-1, Tin vanadium oxide

11126-28-6, Titanium tungsten oxide 12651-22-8, Tin tungsten oxide 12672-48-9, Chromium silicon oxide 12673-88-0, Molybdenum tin oxide 12738-08-8, Molybdenum titanium oxide 39290-95-4, Tungsten zirconium oxide 39467-15-7, Silicon tungsten oxide 51683-41-1, Vanadium zirconium oxide 53801-91-5, Chromium titanium oxide 53809-64-6, Chromium tin oxide 57348-12-6, Molybdenum zirconium oxide 108658-64-6, Chromium zirconium oxide 163332-35-2, Boron hafnium oxide 174179-90-9, Silicon vanadium oxide 183863-24-3, Molybdenum silicon oxide 264130-17-8, Boron neodymium oxide 933044-65-6, Boron indium oxide 933044-66-7, Boron germanium oxide 933044-67-8, Boron gallium oxide 933044-68-9, Boron cerium oxide
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(coatings or binders; electrode catalysts containing proton-conducting inorg. Oxide super strong acids for MEA and fuel cells)

L56 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1448375 HCAPLUS Full-text
DOCUMENT NUMBER: 148:56506
TITLE: Preparation of carbon nanofibers containing catalyst nanoparticles
INVENTOR(S): Birkan, Burak; Menceloglu, Yusuf Ziya; Guelguen, Mehmet Ali
PATENT ASSIGNEE(S): Sabanci Ueniversitesi, Turk.; Tuebitak Tuerkiye Bilimsel ve Teknolojik Arastirma Kurumu
SOURCE: Eur. Pat. Appl., 26pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1867762	A1	20071219	EP 2006-404002	20060613
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
PRIORITY APPLN. INFO.:			EP 2006-404002	20060613

AB The invention relates a method for synthesizing carbon nanofibers containing catalytic material particles characterized in that it comprises:: (a) electrospinning a polymer solution and a catalytic material precursor for obtaining polymer fibers containing catalytic material precursor particles, (b) reducing the product obtained in (a) with a reducing agent to form polymer fibers containing catalytic material particles, (c) heat treating the product obtained in (b) for converting the polymer fibers containing catalytic material particles into carbon fibers containing catalytic material particles. The invention also relates to the intermediate products and products obtained by this method and use of these in various applications.
CC 40-2 (Textiles and Fibers)
IT Catalysts
Electrodes
Filters
Fuel cell electrodes
Fuel cells
Heat treatment
Membranes, nonbiological
Photodiodes
Primary batteries
Reduction

Secondary batteries
(preparation of carbon nanofibers containing catalyst nanoparticles)
IT 7439-88-5D, Iridium, compds. 7439-89-6D, Iron, compds. 7439-91-0D, Lanthanum, compds. 7439-92-1D, Lead, compds. 7439-96-5D, Manganese, compds. 7439-98-7D, Molybdenum, compds. 7440-02-0D, Nickel, compds. 7440-03-1D, Niobium, compds. 7440-04-2D, Osmium, compds. 7440-05-3D, Palladium, compds. 7440-06-4D, Platinum, compds. 7440-15-5D, Rhenium, compds. 7440-16-6D, Rhodium, compds. 7440-18-8D, Ruthenium, compds. 7440-20-2D, Scandium, compds. 7440-22-4D, Silver, compds. 7440-25-7D, Tantalum, compds. 7440-26-8D, Technetium, compds. 7440-31-5D, Tin, compds. 7440-32-6D, Titanium, compds. 7440-33-7D, Tungsten, compds. 7440-36-0D, Antimony, compds. 7440-43-9D, Cadmium, compds. 7440-47-3D, Chromium, compds. 7440-48-4D, Cobalt, compds. 7440-50-8D, Copper, compds. 7440-55-3D, Gallium, compds. 7440-57-5D, Gold, compds. 7440-58-6D, Hafnium, compds. 7440-62-2D, Vanadium, compds. 7440-65-5D, Yttrium, compds. 7440-67-7D, Zirconium, compds. 7440-69-9D, Bismuth, compds. 7440-74-6D, Indium, compds.
RL: CAT (Catalyst use); USES (Uses)
(particles; preparation of carbon nanofibers containing catalyst nanoparticles)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L56 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:1225233 HCAPLUS Full-text
DOCUMENT NUMBER: 145:508544
TITLE: Electrode and catalytic materials
INVENTOR(S): Ying, Jackie Y.; Weiss, Steven E.
PATENT ASSIGNEE(S): Massachusetts Institute of Technology, USA
SOURCE: PCT Int. Appl., 83pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006125177	A2	20061123	WO 2006-US19536	20060519
WO 2006125177	A3	20070607		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

US 20060280998	A1	20061214	US 2006-438079	20060519
PRIORITY APPLN. INFO.:			US 2005-682737P	P 20050519

AB The invention relates to materials used as electrodes and/or catalysts, as well as methods associated with the same. The materials may comprise an alloy or intermetallic compound of a transition metal (e.g., Ni) and a metal additive (e.g., Sn). The transition metal and additive are selected to

provide improved electrode and/or catalytic performance. For example, the materials of the invention may have a high catalytic activity, while being less susceptible to coking than certain conventional electrode/catalytic materials. These performance advantages can simplify the equipment used in certain applications, as well as reducing energy and capital requirements. Furthermore, the materials may be manufactured using traditional ceramic processing methods, without the need for complex, unconventional fabrication techniques. The materials are particularly suitable for use in fuel cells (e.g., SOFC electrodes) and in reactions that use or produce synthesis gas.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67, 72

IT Catalysts
(electrocatalysts; electrode and catalytic materials)

IT Fuel cells
(solid oxide; electrode and catalytic materials)

IT Cobalt alloy, base
Iron alloy, base
Nickel alloy, base
RL: CAT (Catalyst use); USES (Uses)
(electrode and catalytic materials)

IT 1344-28-1, Alumina, uses 7439-92-1, Lead, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)
(electrode and catalytic materials)

IT 12059-23-3 12059-24-4 55072-50-9, Lanthanum strontium titanium oxide 55575-06-9, Cerium samarium oxide 64417-98-7, Yttrium zirconium oxide 103938-52-9, Cerium terbium oxide 112721-99-0 117698-61-0, Cerium praseodymium oxide 133878-25-8, Lanthanum manganese strontium oxide (La0.78MnSr0.2O3) 182374-60-3, Calcium lanthanum titanium oxide ((Ca,La)TiO3) 233280-43-8, Cerium samarium oxide ((Ce,Sm)O2) 915026-44-7, Calcium lanthanum titanium oxide (Ca0.8La0.2TiO3.1)
RL: DEV (Device component use)
(electrode and catalytic materials)

IT 7440-06-4, Engelhard A 3788A, uses
RL: DEV (Device component use)
(paste, Engelhard A 3788A; electrode and catalytic materials)

L56 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:31978 HCAPLUS Full-text
DOCUMENT NUMBER: 144:111298
TITLE: Method of fabrication of catalyst layer for solid polymer electrolyte fuel cell
INVENTOR(S): Miyazaki, Kazuya; Yamada, Kazuhiro; Okumura, Yoshinobu
PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006004023	A1	20060112	WO 2005-JP12163	20050624

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG,

NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

JP 2006049278	A	20060216	JP 2005-158097	20050530
CA 2570317	A1	20060112	CA 2005-2570317	20050624
EP 1769550	A1	20070404	EP 2005-755869	20050624
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1977410	A	20070606	CN 2005-80021605	20050624
BR 2005012710	A	20080401	BR 2005-12710	20050624
US 20070212591	A1	20070913	US 2006-570011	20061204
KR 2007024653	A	20070302	KR 2006-727353	20061227
KR 778628	B1	20071128		
IN 2007CN00424	A	20070824	IN 2007-CN424	20070131

PRIORITY APPLN. INFO.:

JP 2004-194791	A	20040630
JP 2005-158097	A	20050530
WO 2005-JP12163	W	20050624

AB There is provided a dendritic catalyst layer for a solid polymer electrolyte fuel cell including: a solid polymer electrolyte membrane; electrodes; and catalyst layers each provided between the solid polymer electrolyte membrane and the resp. electrode, the catalyst layer for a solid polymer electrolyte fuel cell includes a catalyst with a dendritic structure. The catalyst with a dendritic structure is formed through vacuum evaporation such as reactive sputtering, reactive electron beam evaporation, or ion plating. The catalyst layer for a solid polymer electrolyte fuel cell can improve catalytic activity, catalyst utilization, and substance transport performance in the catalyst layer.

IC ICM H01M004-86
ICS H01M004-88; H01M004-90; H01M004-92; H01M008-02; H01M008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

IT Catalysts
(electrocatalysts; method of fabrication of catalyst layer for solid polymer electrolyte fuel cell)

IT Fuel cells
(polymer electrolyte; method of fabrication of catalyst layer for solid polymer electrolyte fuel cell)

IT Platinum alloy, base
RL: CAT (Catalyst use); USES (Uses)
(method of fabrication of catalyst layer for solid polymer electrolyte fuel cell)

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses 11107-69-0 11107-71-4 11129-89-8, Platinum oxide 11134-15-9 12623-53-9 12779-05-4 12782-98-8

39339-47-4 50942-39-7 51402-57-4 58049-12-0 74092-28-7
RL: CAT (Catalyst use); USES (Uses)
(method of fabrication of catalyst layer for solid polymer electrolyte fuel cell)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L56 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:841791 HCAPLUS Full-text
DOCUMENT NUMBER: 145:252378
TITLE: Oxidation resistant electrode for fuel cell
INVENTOR(S): Mance, Andrew M.; Cai, Mei; Carriquiry, Cecilia; Ruthkosky, Martin S.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 11pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060188775	A1	20060824	US 2006-354213	20060214
WO 2006091443	A2	20060831	WO 2006-US5262	20060214
WO 2006091443	A3	20070907		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
DE 112006000396	T5	20080228	DE 2006-112006000396	20060214
KR 2007108405	A	20071109	KR 2007-721375	20070918
CN 101156265	A	20080402	CN 2006-80011244	20071008
PRIORITY APPLN. INFO.:			US 2005-654307P P	20050218
			WO 2006-US5262 W	20060214

AB An oxygen reducing electrode for a fuel cell comprises carbon particles as support for catalyst particles. The carbon particles are coated with smaller particles of a metal oxide and/or metal phosphate (for example, TiO2 particles) to impede destructive oxidation (corrosion) of the carbon particles while permitting suitable elec. Conductivity between the carbon particles. The catalyst is carried on the smaller particle-coated carbon particles. Titanium dioxide particles can be dispersed on carbon particles suspended in a liquid medium by ultrasonic decomposition of a suitable titanium precursor compound

INCL 429044000; 429030000; 502101000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Catalysts
(electrocatalysts; oxidation resistant electrode for fuel cell)
IT Coating materials
Fuel cell cathodes
Fuel cell electrodes
Fuel cells

(oxidation resistant electrode for fuel cell)
IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); USES (Uses)
(oxidation resistant electrode for fuel cell)
IT 1312-43-2, Indium oxide 1313-99-1, Nickel oxide, uses
1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide,
uses 1317-80-2, Rutile 1332-29-2, Tin oxide 1332-37-2, Iron
oxide, uses 1344-70-3, Copper oxide 7440-44-0, Carbon, uses
11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3,
Cobalt oxide 11118-57-3, Chromium oxide 13463-67-7, Titania, uses
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES
(Uses)
(oxidation resistant electrode for fuel cell)

L56 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:493370 HCAPLUS Full-text
DOCUMENT NUMBER: 144:471498
TITLE: Sputtered catalyst structure and membrane-electrode assembly using it for polymer electrolyte fuel cell
INVENTOR(S): Yoshikawa, Masato; Sugi, Shinichiro; Ono, Shingo; Iwabuchi, Yoshinori; Shiino, Osamu; Toyosawa, Shinichi
PATENT ASSIGNEE(S): Bridgestone Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006134603	A	20060525	JP 2004-319552	20041102

PRIORITY APPLN. INFO.: JP 2004-319552 20041102
AB The title structure has a catalyst coating formed by reactive sputtering on a support. The membrane-electrode assembly equipped with the above structure provides high catalytic activity.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67
IT Catalysts
(electrocatalysts; sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)
IT Fuel cells
(polymer electrolyte; sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)
IT 409-21-2, Silicon carbide, uses 1299-86-1, Aluminum carbide 1312-81-8,
Lanthanum oxide 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, uses
1314-13-2, Zinc oxide, uses 1314-35-8, Tungsten oxide, uses
1314-61-0, Tantalum oxide 1332-37-2, Iron oxide, uses
1335-25-7, Lead oxide 1344-28-1, Alumina, uses 1344-70-3, Copper oxide
7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6,
Iron, uses 7439-91-0, Lanthanum, uses 7439-92-1, Lead, uses
7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses
7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-02-0,
Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses
7440-06-4, Platinum, uses 7440-09-7, Potassium, uses
7440-10-0, Praseodymium, uses 7440-15-5, Rhenium, uses 7440-16-6,
Rhodium, uses 7440-17-7, Rubidium, uses 7440-18-8, Ruthenium, uses
7440-19-9, Samarium, uses 7440-20-2, Scandium, uses 7440-21-3,
Silicon, uses 7440-22-4, Silver, uses 7440-23-5, Sodium, uses
7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-28-0,

Thallium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-43-9, Cadmium, uses 7440-45-1, Cerium, uses 7440-46-2, Cesium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-53-1, Europium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses 11098-99-0, Molybdenum oxide 11104-61-3, Cobalt oxide 11105-01-4, Silicon nitride oxide 12033-62-4, Tantalum nitride 12033-89-5, Silicon nitride, uses 12069-94-2, Niobium carbide 12070-06-3, Tantalum carbide 12070-08-5, Titanium carbide 12070-12-1, Tungsten carbide (WC) 12627-57-5, Molybdenum carbide 12633-97-5, Aluminum nitride oxide 12640-64-1, Iron carbide 12648-34-9, Niobium nitride 12710-36-0, Nickel carbide 12738-11-3, Nickel nitride 13463-67-7, Titania, uses 24304-00-5, Aluminum nitride 25583-20-4, Titanium nitride 37245-77-5, Iron nitride 37245-81-1, Molybdenum nitride 37271-26-4, Titanium nitride oxide 37359-53-8, Tungsten nitride 39300-69-1, Lead carbide 50816-03-0, Tungsten nitride oxide 51177-04-9, Cobalt carbide 51680-36-5, Copper carbide 52036-89-2, Lead nitride 52036-92-7, Tantalum nitride oxide 55326-68-6, Cobalt nitride 56127-37-8, Niobium nitride oxide 56591-82-3, Lanthanum carbide 74499-90-4, Zinc carbide 96777-69-4, Copper nitride 107827-12-3, Iron nitride oxide 128579-03-3, Zinc nitride 141325-59-9, Molybdenum nitride oxide 147230-92-0, Nickel nitride oxide 156202-32-3, Cobalt nitride oxide 156202-33-4, Copper nitride oxide 161929-21-1, Nitrogen zinc oxide 175295-28-0, Lanthanum nitride 395075-29-3, Lanthanum nitrogen oxide 439933-05-8, Lead nitrogen oxide

RL: CAT (Catalyst use); DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)

L56 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:493347 HCAPLUS Full-text

DOCUMENT NUMBER: 144:471494

TITLE: Sputtered catalyst structure and membrane electrode assembly using it for polymer electrolyte fuel cells

INVENTOR(S): Yoshikawa, Masato; Sugi, Shinichiro; Ono, Shingo; Sato, Kenji; Toyosawa, Shinichi

PATENT ASSIGNEE(S): Bridgestone Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006134602	A	20060525	JP 2004-319548	20041102

PRIORITY APPLN. INFO.: JP 2004-319548 20041102

AB The title structure has a catalyst coating formed by gas-flow sputtering on a support. The membrane-electrode assembly equipped with the above structure provides high catalytic activity.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

IT Catalysts
(electrocatalysts; sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)
IT Fuel cells
(polymer electrolyte; sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)
IT 409-21-2, Silicon carbide, uses 1299-86-1, Aluminum carbide 1312-81-8, Lanthanum oxide 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, uses 1314-13-2, Zinc oxide, uses 1314-35-8, Tungsten oxide, uses 1314-61-0, Tantalum oxide 1332-37-2, Iron oxide, uses 1335-25-7, Lead oxide 1344-28-1, Alumina, uses 1344-70-3, Copper oxide 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-10-0, Praseodymium, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-17-7, Rubidium, uses 7440-18-8, Ruthenium, uses 7440-19-9, Samarium, uses 7440-20-2, Scandium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-43-9, Cadmium, uses 7440-45-1, Cerium, uses 7440-46-2, Cesium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-53-1, Europium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses 11098-99-0, Molybdenum oxide 11104-61-3, Cobalt oxide 11105-01-4, Silicon nitride oxide 12033-62-4, Tantalum nitride 12033-89-5, Silicon nitride, uses 12069-94-2, Niobium carbide 12070-06-3, Tantalum carbide 12070-08-5, Titanium carbide 12070-12-1, Tungsten carbide (WC) 12627-57-5, Molybdenum carbide 12633-97-5, Aluminum nitride oxide 12640-64-1, Iron carbide 12648-34-9, Niobium nitride 12710-36-0, Nickel carbide 12738-11-3, Nickel nitride 13463-67-7, Titania, uses 24304-00-5, Aluminum nitride 25583-20-4, Titanium nitride 37245-77-5, Iron nitride 37245-81-1, Molybdenum nitride 37271-26-4, Titanium nitride oxide 37359-53-8, Tungsten nitride 39300-69-1, Lead carbide 50816-03-0, Tungsten nitride oxide 51177-04-9, Cobalt carbide 51680-36-5, Copper carbide 52036-89-2, Lead nitride 52036-92-7, Tantalum nitride oxide 55326-68-6, Cobalt nitride 56127-37-8, Niobium nitride oxide 56591-82-3, Lanthanum carbide 74499-90-4, Zinc carbide 96777-69-4, Copper nitride 107827-12-3, Iron nitride oxide 128579-03-3, Zinc nitride 141325-59-9, Molybdenum nitride oxide 147230-92-0, Nickel nitride oxide 156202-32-3, Cobalt nitride oxide 156202-33-4, Copper nitride oxide 161929-21-1, Nitrogen zinc oxide 175295-28-0, Lanthanum nitride 395075-29-3, Lanthanum nitrogen oxide 439933-05-8, Lead nitrogen oxide
RL: CAT (Catalyst use); DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(sputtered catalyst structure for membrane-electrode assembly in polymer electrolyte fuel cell)

L56 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:729977 HCAPLUS Full-text

DOCUMENT NUMBER: 145:178428
TITLE: Carbon-metal composite material and process of preparing the same
INVENTOR(S): Im, Dong-Min; Ham, Yong-Nam; Kim, Han-Su; Lee, Jeong-Hee
PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea
SOURCE: Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1683759	A1	20060726	EP 2006-250317	20060120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
KR 2006085163	A	20060726	KR 2005-98664	20051019
KR 846477	B1	20080717		
JP 2006202759	A	20060803	JP 2006-12609	20060120
US 20060165995	A1	20060727	US 2006-338106	20060123
CN 1817894	A	20060816	CN 2006-10006003	20060123
PRIORITY APPLN. INFO.:			KR 2005-5808 A	20050121
			KR 2005-98664 A	20051019

OTHER SOURCE(S): MARPAT 145:178428

AB There are provided a C-metal composite material which has improved conductivity, sp. Surface area and regularity and a shape which is easily controlled, and a process of preparing the same. The C-metal composite material includes C and metal, has a sheet resistance of 8 mΩ /sq. or less under a pressure of 100 kgf/cm2 and a sp. Surface area of 30 m2/g or greater, shows an x-ray pattern having at least one peak at d-spacings of 6 nm or greater.

CC 76-2 (Electric Phenomena)
Section cross-reference(s): 52, 56, 57, 66, 67

IT Catalysts
Electric conductors
Luminescent substances
Magnetic materials
Nonlinear optical materials
(carbon-metal composite material and process of preparing)

IT Ceramic composites
Fuel cells
Heat treatment
Powders
(carbon-metal composite material and process of preparing for conductors and fuel-cell catalysts)

IT Catalysts
(carbon-metal composite; carbon-metal composite material and process of preparing for conductors and fuel-cell catalysts)

IT 100-21-0D, Terephthalic acid, coordination polymer 290-37-9D, Pyrazine, coordination polymer 553-26-4D, 4,4'-Bipyridine, coordination polymer 554-95-0D, Trimesic acid, coordination polymer 1141-38-4D, 2,6-Naphthalenedicarboxylic acid, coordination polymer 7439-89-6, Iron, processes 7439-91-0, Lanthanum, processes 7439-92-1, Lead, processes 7439-96-5, Manganese, processes 7439-98-7, Molybdenum, processes 7440-03-1, Niobium, processes 7440-04-2, Osmium, processes 7440-05-3, Palladium, processes 7440-06-4, Platinum, processes 7440-18-8, Ruthenium,

processes 7440-31-5, Tin, processes 7440-32-6, Titanium, processes 7440-43-9, Cadmium, processes 7440-47-3, Chromium, processes 7440-48-4, Cobalt, processes 7440-50-8, Copper, processes 7440-57-5, Gold, processes 7440-62-2, Vanadium, processes 7440-67-7, Zirconium, processes 7440-69-9, Bismuth, processes 7440-74-6, Indium, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(carbon-metal composite material and process of preparing)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L56 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:1049960 HCAPLUS Full-text
DOCUMENT NUMBER: 143:349945
TITLE: Production and use of modified carbon products in fuel cell components and similar devices
INVENTOR(S): Hampden-Smith, Mark J.; Atanassova, Paolina; Napolitano, Paul; Bhatia, Rimple; Rice, Gordon L.; Caruso, James; Brewster, James; Gurau, Bogdan
PATENT ASSIGNEE(S): Cabot Corporation, USA
SOURCE: PCT Int. Appl., 177 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2005091416	A2	20050929	WO 2005-US8665		20050315
WO 2005091416	A3	20060928			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
CA 2560069	A1	20050929	CA 2005-2560069		20050315
US 20050221139	A1	20051006	US 2005-81754		20050315
US 20050221141	A1	20051006	US 2005-81765		20050315
US 20050233183	A1	20051020	US 2005-81752		20050315
US 20050233203	A1	20051020	US 2005-81768		20050315
EP 1726018	A2	20061129	EP 2005-725683		20050315
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, LV, MK, YU					
JP 2007535787	T	20071206	JP 2007-504047		20050315
PRIORITY APPLN. INFO.:			US 2004-553413P	P	20040315
			US 2004-553611P	P	20040315
			US 2004-553612P	P	20040315
			US 2004-553672P	P	20040315
			WO 2005-US8665	W	20050315

AB Fuel cell components incorporating modified carbon products are disclosed. The modified carbon products advantageously enhance the properties of the components leading to more efficiency within the fuel cell.

IC ICM H01M008-10
ICS H01M004-90; H01B001-12; C08J005-22; H01M004-88; H01M008-02; H01M004-86

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Catalysts
(electrocatalysts; production and use of modified carbon products in fuel cell components and similar devices)

IT Fuel cells
(proton exchange membrane; production and use of modified carbon products in fuel cell components and similar devices)

IT 1313-99-1, Nickel oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide, uses 1332-37-2, Iron oxide, uses 1344-28-1, Aluminum oxide, uses 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11113-77-2, Palladium oxide 11113-84-1, Ruthenium oxide 11118-57-3, Chromium oxide 11129-60-5, Manganese oxide 11129-89-8, Platinum oxide 11134-15-9 12055-23-1, Hafnium oxide 12623-53-9 12624-27-0, Rhenium oxide 12627-00-8, Niobium oxide 12680-36-3, Rhodium oxide 12779-05-4 13463-67-7, Titanium oxide, uses 20667-12-3, Silver oxide 37186-93-9 39403-39-9, Gold oxide 50942-39-7 59763-75-6, Tantalum oxide 60596-33-0 77088-24-5 91033-96-4
RL: CAT (Catalyst use); USES (Uses)
(production and use of modified carbon products in fuel cell components and similar devices)

IT 7440-06-4D, Platinum, compound
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(production and use of modified carbon products in fuel cell components and similar devices)

L56 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:472490 HCAPLUS Full-text
DOCUMENT NUMBER: 143:10586
TITLE: Hydrogen/hydrogen peroxide fuel cell
INVENTOR(S): Luo, Nie; Miley, George
PATENT ASSIGNEE(S): NPL Associates, Inc., USA
SOURCE: PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2005050758	A2	20050602	WO 2004-US38714	20041118
WO 2005050758	A3	20060309		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 20050136310	A1	20050623	US 2004-990695	20041117
US 7241521	B2	20070710		
CA 2544882	A1	20050602	CA 2004-2544882	20041118
EP 1685614	A2	20060802	EP 2004-811429	20041118
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR, IS, YU				
US 20080014477	A1	20080117	US 2007-825143	20070703
PRIORITY APPLN. INFO.:			US 2003-520899P P	20031118
			US 2004-990695 A	20041117
			WO 2004-US38714 W	20041118

AB One embodiment of the present invention includes a technique of performing a catalytic oxidation reaction at an anode to provide hydrogen ions from mol. Hydrogen and a catalytic reduction reaction at a cathode to provide hydroxyl ions from liquid hydrogen peroxide. Passage the mol. Hydrogen to a reaction region is impeded with a proton exchange membrane and passage of the hydrogen peroxide to the reaction region is impeded with an ion-selective arrangement. Elec. Potential is generated between the anode and the cathode to provide elec. Power from a reaction of the hydrogen ions and the hydroxyl ions in the reaction region. In one variation, a regeneration technique is also provided.

IC ICM H01M

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Catalysts
Dispersing agents
Space vehicles
(hydrogen/hydrogen peroxide fuel cell)

IT Fuel cells
(proton exchange membrane; hydrogen/hydrogen peroxide fuel cell)

IT 7439-89-6, Iron, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-74-6, Indium, uses 11107-69-0 39398-71-5
RL: CAT (Catalyst use); USES (Uses)
(hydrogen/hydrogen peroxide fuel cell)

L56 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER:	2005:76441 HCAPLUS Full-text
DOCUMENT NUMBER:	142:159556
TITLE:	Fabrication and use of electrodes and other fuel cell components having ultra low catalyst loadings coated thereon
INVENTOR(S):	Figueroa, Juan C.
PATENT ASSIGNEE(S):	E.I. Dupont de Nemours and Company, USA
SOURCE:	PCT Int. Appl., 24 pp. CODEN: PIXXD2
DOCUMENT TYPE:	Patent
LANGUAGE:	English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005008814	A2	20050127	WO 2004-US22559	20040709
WO 2005008814	A3	20051215		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-486108P P 20030710

AB The present invention relates to fuel cells and various fuel cell components comprising electrocatalysts comprising composite materials that deliver high mass specific current densities through the use of activated precursor electrocatalysts.

IC ICM H01M004-90
ICS H01M004-86; B01J037-02; B01J023-56

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

IT Catalysts
(electrocatalysts; fabrication and use of electrodes and other fuel cell components having ultra low catalyst loadings coated thereon)

IT Fuel cell electrodes
Fuel cells
(fabrication and use of electrodes and other fuel cell components having ultra low catalyst loadings coated thereon)

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7439-97-6, Mercury, uses 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-41-7, Beryllium, uses 7440-43-9, Cadmium, uses 7440-48-4, Cobalt, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); USES (Uses)
(fabrication and use of electrodes and other fuel cell components having ultra low catalyst loadings coated thereon)

L56 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:140770 HCAPLUS Full-text
DOCUMENT NUMBER: 142:243595
TITLE: Platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst
INVENTOR(S): Devenney, Martin; Gorer, Alexander; Strasser, Peter; He, Ting; Oyanagi, Hiroyuki; Giaquinta, Daniel M.; Fan, Qun; Chondroudis, Konstantinos
PATENT ASSIGNEE(S): Symyx Technologies, Inc., USA; Honda Giken Kogyo

Kabushiki Kaisha; MEMC Electronic Materials, Inc.
SOURCE: U.S. Pat. Appl. Publ., 24 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050037920	A1	20050217	US 2004-849291	20040519
US 20060019825	A2	20060126		

PRIORITY APPLN. INFO.: US 2003-473565P P 20030527

AB A fuel cell electrocatalyst contains platinum, indium, and at least one of tungsten, iron, and manganese. The catalyst consists essentially of Pt, In, and ≥1 of W, Fe, and Mn. The catalyst is an alloy comprising Pt, In, and ≥1 W, Fe, and Mn.

IC ICM H01M008-00
ICS H01M008-04; H01M008-10; H01M004-86; H01M004-90; H01M004-96
INCL 502313000; 429040000; 429044000; 429030000; 429013000; 429017000; 502324000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67
ST fuel cell electrocatalyst platinum indium iron tungsten manganese

IT Catalysts
(electrocatalysts; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Fuels
(fossil; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Municipal refuse
(off-gas; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Hydrocarbons, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(oxy; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Fuel cell anodes
Fuel cell cathodes
Photolithography
(platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Hydrocarbons, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Fuel cells
(proton exchange membrane; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT Magnetron sputtering
(radio-frequency; platinum-indium-iron/tungsten/manganese fuel cell electrocatalyst)

IT 7439-89-6, Iron, uses 7439-96-5,

Manganese, uses 7440-06-4, Platinum, uses
7440-33-7, Tungsten, uses 7440-74-6,
Indium, uses 56319-92-7, Manganese 50,
platinum 50 atomic 844839-26-5 844839-27-6 844839-28-7
844839-29-8 844839-30-1 844839-31-2 844839-32-3 844839-33-4
844839-34-5 844839-35-6 844839-36-7 844839-37-8 844839-38-9
844839-39-0 844839-40-3 844839-41-4 844839-42-5 844839-43-6
844839-44-7 844839-45-8 844839-46-9 844839-47-0 844839-48-1
844839-49-2 844839-50-5 844839-51-6 844839-52-7 844839-53-8
844839-54-9 844839-55-0 844839-56-1 844839-57-2 844839-58-3
844839-59-4 844839-60-7 844839-61-8 844839-62-9 844839-63-0
844839-64-1 844839-65-2 844839-66-3 844839-67-4 844839-68-5
844839-69-6 844839-70-9 844839-71-0 844839-72-1 844839-73-2
844839-74-3 844839-75-4 844839-76-5 844839-77-6 844839-78-7
844839-79-8 844839-80-1 844839-81-2 844839-82-3 844839-83-4
844839-84-5 844839-85-6 844839-86-7 844839-88-9 844839-95-8
844839-97-0 844839-98-1 844839-99-2 844840-00-2 844840-02-4
844840-04-6 844840-06-8 844840-09-1 844840-11-5 844840-13-7
844840-15-9 844840-18-2 844840-20-6 844840-22-8 844840-24-0
844840-26-2 844840-27-3 844840-28-4 844840-29-5 844840-31-9
844840-33-1 844840-35-3 844840-36-4 844840-38-6 844840-40-0
RL: CAT (Catalyst use); USES (Uses)
(platinum-indium-iron/tungsten/
manganese fuel cell electrocatalyst)

IT 7782-44-7, Oxygen, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(platinum-indium-iron/tungsten/
manganese fuel cell electrocatalyst)

IT 67-56-1, Methanol, uses 1333-74-0, Hydrogen, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(platinum-indium-iron/tungsten/
manganese fuel cell electrocatalyst)

L56 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:270261 HCAPLUS Full-text
DOCUMENT NUMBER: 140:273630
TITLE: Electrochemical generation, storage and reaction of hydrogen and oxygen
INVENTOR(S): Sanders, Nicholas
PATENT ASSIGNEE(S): Diffusion Science, Inc., USA
SOURCE: PCT Int. Appl., 92 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004027901	A2	20040401	WO 2003-US29802	20030917
WO 2004027901	A3	20050324		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,

FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003275103	A1	20040408	AU 2003-275103	20030917
US 20040101740	A1	20040527	US 2003-664408	20030917
US 7198867	B2	20070403		

PRIORITY APPLN. INFO.:	US 2002-411443P	P	20020917
	US 2003-455215P	P	20030317
	WO 2003-US29802	W	20030917

AB The invention concerns an electrolytic apparatus for using catalyst-coated hollow microspheres to produce gases, store them, and to make them available for later use. The apparatus uses catalyst-coated hollow microspheres in reversible electrochem. Processes and reactions, such as those used in conjunction with water dissociation, fuel cells, and rechargeable batteries. The apparatus can be used to manufacture and store hydrogen and or oxygen and to make them available for subsequent use as raw materials for use in electrochem. And chemical reactions or as a fuel and or oxidizer for a combustion engine. The apparatus can be used as a hydrogen-oxygen hermetically sealed secondary battery. The apparatus can be used as a hydrogen storage portion of certain types of secondary batteries. Hydrogen and oxygen can be stored within hollow microspheres at moderate temperature and pressure, eliminating the need for expensive storage and handling equipment, and increasing the mobility of hydrogen-powered vehicles. Storage of hydrogen and or oxygen within the microspheres significantly reduces flammability and explosion concerns and resolves many fuel cell scalability issues.

IC ICM H01M004-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 72

IT Catalysts
Ceramics
Composites
Electrodeposition
Electrodes
Electrolytic cells
Fuel cells
Glass ceramics
Microspheres
Secondary batteries
Sintering
Sol-gel processing
Sputtering
Welding
(electrochem. Generation, storage and reaction of hydrogen and oxygen)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-17-7, Rubidium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-41-7, Beryllium, uses 7440-43-9, Cadmium, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-67-7, Zirconium, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); USES (Uses)
(electrochem. Generation, storage and reaction of hydrogen and oxygen)

L56 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:433703 HCAPLUS Full-text
DOCUMENT NUMBER: 141:9611

TITLE: Enzyme immobilization for use in biofuel cells and sensors
INVENTOR(S): Minteer, Shelley D.; Akers, Niki L.; Moore, Christine M.
PATENT ASSIGNEE(S): St. Louis University, USA
SOURCE: U.S. Pat. Appl. Publ., 33 pp., which
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040101741	A1	20040527	US 2003-617452	20030711
CA 2507455	A1	20040617	CA 2003-2507455	20031121
WO 2004051774	A2	20040617	WO 2003-US37336	20031121
WO 2004051774	A3	20041125		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003297552	A1	20040623	AU 2003-297552	20031121
EP 1565957	A2	20050824	EP 2003-812443	20031121
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2006508519	T	20060309	JP 2004-570766	20031121

PRIORITY APPLN. INFO.:			
US 2002-429829P	P	20021127
US 2003-486076P	P	20030710
US 2003-617452	A	20030711
WO 2003-US37336	W	20031121

OTHER SOURCE(S): MARPAT 141:9611

AB Disclosed are bioanodes comprising a quaternary ammonium treated Nafion polymer membrane and a dehydrogenase incorporated within the treated Nafion polymer. The dehydrogenase catalyzes the oxidation of an organic fuel and reduces an adenine dinucleotide. The ion conducting polymer membrane lies juxtaposed to a polymethylene green redox polymer membrane, which serves to electro-oxidize the reduced adenine dinucleotide. The bioanode is used in a fuel cell to produce high power densities.

IC ICM H01M004-90
ICS H01M004-96; H01M008-10; C12N011-08
INCL 429043000; 429044000; 429042000; 429030000; 429013000; 435180000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 7, 38
IT Fuel cells
(biochem. Fuel cells; enzyme immobilization for use in biofuel cells and sensors)
IT Catalysts
(electrocatalysts; enzyme immobilization for use in biofuel cells and sensors)
IT 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-42-8, Boron, uses 7440-55-3, Gallium, uses 7440-74-6, Indium, uses 7723-14-0, Phosphorus, uses
RL: MOA (Modifier or additive use); USES (Uses)

(dopant; enzyme immobilization for use in biofuel cells and sensors)
IT 7439-89-6, Iron, uses 7439-97-6, Mercury, uses
7440-02-0, Nickel, uses 7440-06-4, Platinum, uses
7440-22-4, Silver, uses 7440-33-7, Tungsten, uses
7440-50-8, Copper, uses 7440-57-5, Gold, uses 7782-42-5, Graphite, uses 11129-18-3, Cerium oxide 12597-68-1, Stainless steel, uses
12612-50-9, Molybdenum sulfide
RL: MOA (Modifier or additive use); USES (Uses)
(electron conductor; enzyme immobilization for use in biofuel cells and sensors)
IT 1910-42-5, Methylviologen 3546-21-2, Ethidium 7440-21-3, Silicon, uses
7440-56-4, Germanium, uses 7773-52-6, Hexadecylpyridinium 12678-01-2D, Phenanthroline, metal complex 13096-46-3, Benzyl viologen 14708-99-7, Tris(1,10-phenanthroline)iron(2+) 14798-03-9, Ammonium, uses
15158-62-0, Tris(2,2'-bipyridine)ruthenium(2+) 16749-13-6, Phosphonium
16969-45-2, Pyridinium 17009-90-4, Imidazolium 37275-48-2D, Bipyridyl, metal complex 48236-06-2, Bis(triphenylphosphine)iminium
RL: MOA (Modifier or additive use); USES (Uses)
(enzyme immobilization for use in biofuel cells and sensors)
IT 15025-74-8, Tris(2,2'-bipyridine)iron(2+) 23648-06-8,
Tris(2,2'-bipyridine)osmium(2+) 80498-15-3, Laccase
RL: RCT (Reactant); RACT (Reactant or reagent)
(enzyme immobilization for use in biofuel cells and sensors)

L56 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:876368 HCAPLUS Full-text
DOCUMENT NUMBER: 141:352211
TITLE: method to produce metal oxide fine particle
INVENTOR(S): Sato, Kazunori; Nagao, Katsuo; Michihata, Hideo
PATENT ASSIGNEE(S): Tokyo Electric Power Co., Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004292188	A	20041021	JP 2003-83499	20030325
PRIORITY APPLN. INFO.:			JP 2003-83499	20030325

AB The metal oxide is given as ABO2, where A is selected from Pd, Pt, Cu, and Ag; B is selected from Co, Fe, Ni, Cr, Rh, Al, Ga, Sc, In, and Tl; and has an average particle size of ≤100 nm. The method includes irradiating ≥0.25 W excimer or ArF excimer laser on a ethanol or phenol solution containing A-containing complex and B-containing complex for ≥5 min. The complexes are selected from 2,4-pentane dionato and alkoxide. The product is used for catalyst to improve electrode activity for solid oxide fuel cells.
IC ICM C01B013-18
ICS C01B013-32; C01G049-00; C01G055-00; H01M004-86; H01M008-12; H01M004-88
CC 49-3 (Industrial Inorganic Chemicals)
Section cross-reference(s): 52, 67
IT Catalysts
Electrodes
Excimer lasers
(method to produce metal oxide fine particle)
IT Fuel cells
(solid oxide; method to produce metal oxide fine particle)
IT 12018-75-6P, Copper iron oxide (CuFeO2) 12506-88-6P, Cobalt

palladium oxide (CoPdO2) 116306-08-2P, Nickel palladium oxide (NiPdO2) 776331-43-2P, Iron palladium oxide (FePdO2)
RL: CAT (Catalyst use); PUR (Purification or recovery); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(method to produce metal oxide fine particle)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-20-2, Scandium, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(method to produce metal oxide fine particle)

L56 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:680227 HCAPLUS Full-text
DOCUMENT NUMBER: 141:209573
TITLE: Apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel
INVENTOR(S): Hayashi, Takahiro; Sugiyama, Masahiko; Suzuki, Hiroshi; Shinagawa, Tomohiro
PATENT ASSIGNEE(S): Toyota Motor Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004231469	A	20040819	JP 2003-22064	20030130
PRIORITY APPLN. INFO.:			JP 2003-22064	20030130

AB The title apparatus includes a storage tank for storing a hydrocarbon fuel (e.g., decalin), a catalyst metal-carried end-less belt at least partially immersed in the hydrocarbon fuel, a driving device for conveying the end-less belt in longitudinal direction, and a heater for heating the end-less belt; it is used for dehydrogenation of above stated hydrocarbon fuel on the heated end-less belt. The apparatus can be used for supplying hydrogen to vehicle-borne fuel cells or hydrogen engine.
IC ICM C01B003-26
CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 52
IT Catalysts
Heaters
(apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel)
IT Fuel cells
(apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel for)
IT 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-48-4, Cobalt, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); USES (Uses)
(apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel for)

L56 ANSWER 24 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:507756 HCAPLUS Full-text

DOCUMENT NUMBER: 141:56595
TITLE: Apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel.
INVENTOR(S): Hayashi, Takahiro; Sugiyama, Masahiko; Suzuki, Hiroshi
PATENT ASSIGNEE(S): Toyota Motor Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004175629	A	20040624	JP 2002-345685	20021128

PRIORITY APPLN. INFO.: JP 2002-345685 20021128

AB The title apparatus includes plural cylindrical dehydrogenation reactors having carbon nanotube catalyst arranged on inner walls and a hydrocarbon fuel (e.g, decalin) supply device having supply holes for supplying hydrocarbon fuel to the carbon nanotube catalyst, and a separation means for separating dehydrogenation of hydrocarbon fuel generated H2 gas. The carbon nanotube catalyst is grown from a metal catalyst. The apparatus can be used for supplying H2 to vehicle-borne fuel cells, etc.

IC ICM C01B003-26
ICS B01J021-18; B01J032-00; H01M008-06
CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 45, 52
IT Catalysts
(apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel)
IT Fuel cells
(vehicle-borne; apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel for)
IT 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-48-4, Cobalt, uses 7440-74-6, Indium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst containing; apparatus for generating hydrogen gas by dehydrogenation of hydrocarbon fuel for)

L56 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:913459 HCAPLUS Full-text
DOCUMENT NUMBER: 139:367608
TITLE: Electrode catalyst for hydrogen sulfide fuel cell
INVENTOR(S): Chuang, Karl T.; Luo, Jingli; Wei, Guolin; Sanger, Alan R.
PATENT ASSIGNEE(S): Governors of the University of Alberta, Can.
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003096452	A2	20031120	WO 2003-CA681	20030513
WO 2003096452	A3	20041118		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 20030215696	A1	20031120	US 2002-143944		20020514
US 20030215697	A1	20031120	US 2002-290429		20021108
US 7014941	B2	20060321			
AU 2003223804	A1	20031111	AU 2003-223804		20030513
CA 2486672	A1	20031120	CA 2003-2486672		20030513
PRIORITY APPLN. INFO.:			US 2002-143944	A1	20020514
			US 2002-290429	A1	20021108
			WO 2003-CA681	W	20030513

AB The present invention relates to an anode catalyst for use in the electrochem. Oxidation of H2S to elemental sulfur and water, specifically in a fuel cell having an ion-conducting membrane. The catalyst comprises a material prepared from two or more metal sulfides of the formula MSx, wherein M is selected from the group consisting of Co, Ni, Fe, Mo, Cu, Cr, W and Mn, and x is between about 1.0 and about 2.5; a conductive material suitable for fuel cell operation; and a porous material. The invention further provides methods of preparing the catalyst, fuel cells comprising the catalyst and methods of electrochem. Oxidizing H2S using the catalyst.

IC ICM H01M004-88
ICS H01M004-90; H01M008-22

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67, 72

IT Catalysts
(electrocatalysts; electrode catalyst for hydrogen sulfide fuel cell)

IT Fuel cells
(solid electrolyte; electrode catalyst for hydrogen sulfide fuel cell)

IT 1317-33-5, Molybdenum sulfide mos2, uses 11113-75-0, Nickel sulfide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-71-3, Tungsten sulfide 12653-56-4, Cobalt sulfide 12687-82-0, Manganese sulfide 16812-54-7, Nickel sulfide Nis 50926-11-9, Ito 55575-04-7, Cerium lanthanum oxide 142164-90-7, Indium praseodymium oxide 403861-24-5, Bismuth silver oxide
RL: CAT (Catalyst use); USES (Uses)
(electrode catalyst for hydrogen sulfide fuel cell)

IT 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrode catalyst for hydrogen sulfide fuel cell)

L56 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:912680 HCAPLUS Full-text
DOCUMENT NUMBER: 139:367598
TITLE: Electrode catalyst for hydrogen sulfide fuel cells for cogeneration of sulfur and power

INVENTOR(S): Chuang, Karl T.; Luo, Jingli; Wei, Guolin; Sanger, Alan R.
PATENT ASSIGNEE(S): The Governors of the University of Alberta, Can.
SOURCE: U.S. Pat. Appl. Publ., 18 pp., Cont.-in-part of U. S. Ser. No. 143,944.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030215697	A1	20031120	US 2002-290429	20021108
US 7014941	B2	20060321		
US 20030215696	A1	20031120	US 2002-143944	20020514
AU 2003223804	A1	20031111	AU 2003-223804	20030513
CA 2486672	A1	20031120	CA 2003-2486672	20030513
WO 2003096452	A2	20031120	WO 2003-CA681	20030513
WO 2003096452	A3	20041118		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:
US 2002-143944 A2 20020514
US 2002-290429 A 20021108
WO 2003-CA681 W 20030513

AB The present invention relates to an anode catalyst for use in the electrochem. Oxidation of H2S to elemental sulfur and water, specifically in a fuel cell having an ion-conducting membrane. The catalyst comprises a material prepared from two or more metal sulfides of the formula MSx, wherein M is selected from the group consisting of Co, Ni, Fe, Mo, Cu, Cr, W and Mn, and x is between about 1.0 and about 2.5; a conductive material suitable for fuel cell operation; and a porous material. The invention further provides methods of preparing the catalyst, fuel cells comprising the catalyst and methods of electrochem. Oxidizing H2S using the catalyst.

IC ICM H01M004-90
ICS H01M004-88
INCL 429040000; 429044000; 429013000; 502101000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67, 72

IT Catalysts
(electrocatalysts; electrode catalyst for hydrogen sulfide fuel cells for cogeneration of sulfur and power)

IT Fuel cells
(solid electrolyte; electrode catalyst for hydrogen sulfide fuel cells for cogeneration of sulfur and power)

IT 1304-76-3, Bismuth oxide, uses 1313-99-1, Nickel oxide, uses 1314-13-2, Zinc oxide, uses 1317-33-5, Molybdenum sulfide mos2, uses 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4,

Silver, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11113-75-0, Nickel sulfide 11113-77-2, Palladium oxide 11113-84-1, Ruthenium oxide 11115-78-9, Copper sulfide 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese oxide 11129-89-8, Platinum oxide 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-71-3, Tungsten sulfide 12653-56-4, Cobalt sulfide 12680-36-3, Rhodium oxide 12687-82-0, Manganese sulfide 16812-54-7, Nickel sulfide nis 20667-12-3, Silver oxide 39403-39-9, Gold oxide 50926-11-9, Ito 55575-04-7, Cerium lanthanum oxide 142164-90-7, Indium praseodymium oxide 403861-24-5, Bismuth silver oxide
RL: CAT (Catalyst use); USES (Uses)
(electrode catalyst for hydrogen sulfide fuel cells for cogeneration of sulfur and power)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L56 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:334468 HCAPLUS Full-text
DOCUMENT NUMBER: 138:324130
TITLE: Fabrication of new membranes for use in fuel cells
INVENTOR(S): Klitsner, Tom; Sylwester, Alan P.; Ryba, Gail N.; Zipperian, Thomas E.; Kravitz, Stanley H.; Hecht, Andrew
PATENT ASSIGNEE(S): Sandia Corporation, USA
SOURCE: U.S. Pat. Appl. Publ., 32 pp., Cont.-in-part of U.S. Ser. No. 17,140.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030082431	A1	20030501	US 2002-56736	20020124
US 6890677	B2	20050510		
US 20020122972	A1	20020905	US 2001-17140	20011030
US 6841290	B2	20050111		

PRIORITY APPLN. INFO.:
US 2001-17140 A2 20011030
US 1999-132909P P 19990506
WO 2000-US12510 A1 20000505

AB A fuel cell comprises: a dielec. Substrate material having upper and lower surfaces, a porous film disposed on the upper surface of the dielec. Substrate material, the porous film comprising ≥1 electrode, and channels extending through the dielec. Material from the upper surface to the lower surface. The fuel cell addnl. Comprises a fuel source disposed in relation to apertures of channels on the lower surface of the dielec. Material. The fuel source comprises ≥1 of H, alcs., O, and other compds. Containing redox pairs.

IC ICM H01M008-02
ICS H01M008-10; H01M008-12; H01M004-92; H01M004-88
INCL 429038000; 429030000; 429033000; 429044000; 502101000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 47, 72
IT Catalysts
(electrocatalysts; fabrication of new membranes for use in

fuel cells)
IT Fuel cells
(solid electrolyte; fabrication of new membranes for use in fuel cells)
IT 1306-38-3, Ceria, uses 7439-89-6, Iron, uses
7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4,
Platinum, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver,
uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 12036-05-4,
Praseodymium oxide pro2 12735-99-8 12779-05-4 407578-48-7,
Indium oxide ino3
RL: CAT (Catalyst use); USES (Uses)
(fabrication of new membranes for use in fuel cells)
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L56 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:380960 HCAPLUS Full-text
DOCUMENT NUMBER: 134:369453
TITLE: High differential pressure electrochemical cell
INVENTOR(S): Skoczylas, Thomas; Christopher, Matthew; Shiepe, Jason K.; Dristy, Mark E.; Molter, Trent M.
PATENT ASSIGNEE(S): Proton Energy Systems, Inc., USA
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001037359	A2	20010525	WO 2000-US42223	20001117
WO 2001037359	A3	20020704		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001037933	A	20010530	AU 2001-37933	20001117
EP 1240680	A2	20020918	EP 2000-992047	20001117
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003515237	T	20030422	JP 2001-537813	20001117
US 6666961	B1	20031223	US 2000-714933	20001117
IN 2002DN00480	A	20040228	IN 2002-DN480	20020507
US 20040105773	A1	20040603	US 2003-604890	20030825
US 6916443	B2	20050712		
US 20050142402	A1	20050630	US 2005-59183	20050216
PRIORITY APPLN. INFO.:			US 1999-166135P	P 19991118
			US 2000-714933	A3 20001117
			WO 2000-US42223	W 20001117
			US 2003-604890	A3 20030825

AB An electrochem. Cell is capable of operating in pressure differentials exceeding about 2000 psi, using a porous electrode. The porous electrode comprises a catalyst adsorbed on or in a porous support that is disposed in intimate contact and fluid communication with the electrolyte membrane.
IC ICM H01M004-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72

IT Catalysts
(electrocatalysts; high differential pressure electrochem. Cell)

IT Automobiles
Electrolytic cells
Fuel cells
Internal combustion engines
Solar cells
Turbines
(high differential pressure electrochem. Cell)

IT Fuel cells
(regenerative fuel cells; high differential pressure electrochem. Cell)

IT 7439-88-5, Iridium, uses 7439-96-5, Manganese, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-57-5, Gold, uses 7440-74-6, Indium, uses 7782-42-5, Graphite, uses 11149-52-3
RL: CAT (Catalyst use); USES (Uses)
(high differential pressure electrochem. Cell)

IT 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-44-0, Carbon, uses 7440-48-4, Cobalt, uses 7440-58-6, Hafnium, uses 7440-67-7, Zirconium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(porous support; high differential pressure electrochem. Cell)

L56 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:73328 HCAPLUS Full-text
DOCUMENT NUMBER: 124:99048
ORIGINAL REFERENCE NO.: 124:18297a,18300a
TITLE: Inorganic-containing composites
INVENTOR(S): Gallagher, Michael Kenrick; Manziek, Larry; Langenmayr, Eric Jon
PATENT ASSIGNEE(S): Rohm and Haas Co., USA
SOURCE: Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 689871	A2	19960103	EP 1995-303309	19950517
EP 689871	A3	19960724		
EP 689871	B1	20000621		
R: BE, DE, DK, ES, FR, GB, IT, NL				
US 5540981	A	19960730	US 1994-251535	19940531
ES 2147262	T3	20000901	ES 1995-303309	19950517
CA 2150078	A1	19951201	CA 1995-2150078	19950524
BR 9502592	A	19960423	BR 1995-2592	19950529
FI 9502626	A	19951201	FI 1995-2626	19950530
JP 08002928	A	19960109	JP 1995-155567	19950531
PRIORITY APPLN. INFO.:			US 1994-251535 A	19940531

AB Composites, and a method for preparing composites, are provided. The composites comprise a plurality of domains on the surface(s) of a support material, and the domains contain one or more inorg. Compds. The method

comprises contacting a support material with one or more metal-loaded polymers and removing the polymer(s).

IC ICM B01J037-00

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 38, 57, 59

IT Borides
Carbides
Carbonaceous materials
Catalysts and Catalysis
Ceramic materials and wares
Composites
Fuel cells
Glass, oxide
Nitrides
Optical materials
Oxides, uses
Plastics
Polymers, uses
Silicides
Superconductors
Transition metals, uses
Zeolites, uses
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(inorg.-containing composites)

IT 409-21-2, Silicon carbide (SiC), uses 1302-88-1, Cordierite 1302-93-8, Mullite 1309-48-4, Magnesia, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Alumina, uses 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-44-0, Carbon, uses 7440-45-1, Cerium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses 7631-86-9, Silicon oxide, uses 7782-42-5, Graphite, uses 9003-70-7, Divinylbenzene-styrene copolymer 9017-49-6, Dimethylaminoethylmethacrylate-divinylbenzene-styrene copolymer 10049-07-7, Rhodium trichloride 10049-08-8, Ruthenium trichloride 11129-18-3, Cerium oxide 11130-73-7, Tungsten carbide 11132-40-4, Molybdate (Mo6O192-) 12033-89-5, Silicon nitride (Si3N4), uses 12597-69-2, Steel, uses 12619-90-8, Nickel boride 13463-67-7, Titanium oxide, uses 14259-85-9 14349-67-8 16455-68-8 16871-54-8, Hexachloroplatinate 18943-33-4 26316-50-7, Dimethylaminoethylmethacrylate-ethylacrylate-methylmethacrylate copolymer 51222-96-9 55088-65-8, Allylmethacrylate-ethylacrylate-methacrylic acid copolymer
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(inorg.-containing composites)

L56 ANSWER 30 OF 31 ENERGY COPYRIGHT 2008 USDOE/IEA-ETDE on STN
ACCESSION NUMBER: 2002(12):41785 ENERGY Full-text
TITLE: The rare metals age.

AUTHOR: Pearse, G.H.K. (Equapolar Resource Consultants Inc., Ottawa, ON (Canada))
SOURCE: Proceedings of the Prospectors and Developers Association of Canada (PDAC) International Convention and Trade Show.
Prospectors and Developers Association of Canada, Toronto, ON (Canada)
Toronto, ON: Prospectors and Developers Association of Canada. 2002. p. 1-14 of [100 p.]. Available from the Prospectors and Developers Association of Canada, PDAC, 34 King Street East, Suite 900, Toronto, Ontario, M5C 2X8 or from the Internet at http://www.pdac.ca/pdac/pub/papers/2002/index.html.
Conference: Prospectors and Developers Association of Canada (PDAC) International Convention and Trade Show, Toronto, ON (Canada), 10 - 13 Mar 2002
DOCUMENT TYPE: Miscellaneous; Conference; Availability Note
COUNTRY: Canada
LANGUAGE: English
FIELD AVAILABILITY: AB
AB This paper examines the potential for rare metals in the new age. While human development has progressed through the Stone Age, Copper Age, Bronze Age and Iron Age, the last 20 years (the modern age) has been marked by the expansion in use of rare metals whose chemical and physical properties have created a range of designer materials with nearly endless application possibilities. Rare elements have high crustal abundances and some of the commonplace metals have low crustal abundances. The elements were plotted using US Bureau of Mines estimates of world resources divided by crustal abundance against electrochemical potential. This plot was done to test if the most reactive elements would have reacted with common crustal elements and been fixed in place. High technology developments have made the most use of rare metals. Platinum group metals (PGM) are used for automobile pollution control and fuel cell catalysts. Electronic components make use of tantalum, niobium, palladium and ruthenium. Power storage and electrical regeneration technology makes use of vanadium. Lithium chemicals are used in aluminum production electrolytes, in neoprene rubber, lubricants, and sanitation chemicals. Rubidium and cesium, the heaviest of alkali metals are used in biomedical and chemical research. The paper also described the unique properties of rare earth metals such as antimony, beryllium, bismuth, tungsten, strontium and by-product rare metals such as cadmium, indium, germanium and gallium. 4 figs
CC *S29 Energy planning, policy and economy
CT RESOURCE MANAGEMENT; MINERAL RESOURCES; RARE EARTHS; PLATINUM METAL ALLOYS; VANADIUM; TECHNOLOGY UTILIZATION
CTDE RESSOURCENMANAGEMENT; BODENSCHAETZE; SELTENE ERDEN; PLATINMETALL-LEGIERUNGEN; VANADIUM; TECHNOLOGIEANWENDUNG
BT ALLOYS; ELEMENTS; MANAGEMENT; METALS; RESOURCES; TRANSITION ELEMENT ALLOYS; TRANSITION ELEMENTS

L56 ANSWER 31 OF 31 SCISEARCH COPYRIGHT ® 2008 The Thomson Corporation on STN
ACCESSION NUMBER: 2007:456874 SCISEARCH Full-text
THE GENUINE ARTICLE: 152UA
TITLE: Electrochemically controlled reconstitution of immobilized ferritins for bioelectronic applications
AUTHOR: Kim, Jae-Woo (Reprint); Choi, Sang H.; Lillehei, Peter T.; Chu, Sang-Hyon; King, Glen C.; Watt, Gerald D.
CORPORATE SOURCE: Natl Inst Aerosp, Hampton, VA 23666 USA (Reprint); NASA, Langley Res Ctr, Adv Mat & Proc Branch, Hampton, VA 23681 USA; Brigham Young Univ, Dept Chem & Biochem, Provo, UT 84602 USA

fn.j.kim@larc.nasa.gov
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF ELECTROANALYTICAL CHEMISTRY, (15 MAR 2007) Vol. 601, No. 1-2, pp. 8-16.
ISSN: 0022-0728.
PUBLISHER: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 40
ENTRY DATE: Entered STN: 10 May 2007
Last Updated on STN: 10 May 2007
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Site-specific reconstituted nanoparticles were fabricated via electrochemically controlled biomineralization through the immobilization of biomolecules. The work reported herein includes the immobilization of ferritin with various surface modifications, the electrochemical biomineralization of ferritins with different inorganic cores, and the electrocatalytic reduction of oxygen on the reconstituted Pt-cored ferritins. Protein immobilization on the substrate is achieved by anchoring ferritins with dithiobis-N-succinimidyl propionate (DTSP). A reconstitution process of site-specific electrochemical biomineralization with a protein cage loads ferritins with different core materials. The ferritin acts as a nano-scale template, a biocompatible cage, and a separator between the nanoparticles. This first demonstration of electrochemically controlled site-specific reconstitution of biomolecules provides a new tool for biomineralization and opens the way to produce the bio-templated nanoparticles by electrochemical control. The nanosized platinum-cored ferritins on gold displayed good catalytic activity for the electrochemical reduction of oxygen, which is applicable to biofuel cell applications. This results in a smaller catalyst loading on the electrodes for fuel cells or other bioelectronic devices. ® 2006 Elsevier B.V. All rights reserved.

CC CHEMISTRY, ANALYTICAL; ELECTROCHEMISTRY
ST Author Keywords: ferritin; immobilization; reconstitution; QCM; electrocatalyst
STP KeyWords Plus ®: 2-IMINOTHIOLANE METHYL 4-MERCAPTOBUTYRIMIDATE; INDIUM OXIDE ELECTRODES; PROTEIN CAGE; BIOMIMETIC SYNTHESIS; CROSS-LINKING; IRON STORAGE; HORSE SPLEEN; APOFERRITIN; COBALT; MAGNETOFERRITIN
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

***** SEARCH HISTORY *****

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=> d his nofile

     (FILE 'HOME' ENTERED AT 10:23:02 ON 08 AUG 2008)

     FILE 'HCAPLUS' ENTERED AT 10:23:44 ON 08 AUG 2008
L1             1 SEA ABB=ON  PLU=ON  US20060019825/PN
                 D IBIB AB IT

     FILE 'REGISTRY' ENTERED AT 10:24:37 ON 08 AUG 2008
L2             1 SEA ABB=ON  PLU=ON  PLATINUM/CN
                 D RN
L3             1 SEA ABB=ON  PLU=ON  7440-06-4/RN
L4             1 SEA ABB=ON  PLU=ON  L2 OR L3
L5             1 SEA ABB=ON  PLU=ON  INDIUM/CN
                 D RN
L6             1 SEA ABB=ON  PLU=ON  7440-74-6/RN
L7             1 SEA ABB=ON  PLU=ON  L5 OR L6
L8             1 SEA ABB=ON  PLU=ON  TUNGSTEN/CN
                 D RN
L9             1 SEA ABB=ON  PLU=ON  7440-33-7/RN
L10            1 SEA ABB=ON  PLU=ON  L8 OR L9
L11            1 SEA ABB=ON  PLU=ON  IRON/CN
                 D RN
L12            1 SEA ABB=ON  PLU=ON  7439-89-6/RN
L13            1 SEA ABB=ON  PLU=ON  L11 OR L12
L14            1 SEA ABB=ON  PLU=ON  MANGANESE/CN
                 D RN
L15            1 SEA ABB=ON  PLU=ON  7439-96-5 /RN
L16            1 SEA ABB=ON  PLU=ON  L14 OR L15
L17            1 SEA ABB=ON  PLU=ON  844839-26-5/RN
                 D CN

     FILE 'HOME' ENTERED AT 10:29:28 ON 08 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 10:29:33 ON 08 AUG 2008
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L18       246603 SEA ABB=ON  PLU=ON  (PLATINUM OR L4)
L19       228709 SEA ABB=ON  PLU=ON  INDIUM OR L7
L20       216469 SEA ABB=ON  PLU=ON  TUNGSTEN OR L10
L21      1126517 SEA ABB=ON  PLU=ON  IRON OR L13
L22       440019 SEA ABB=ON  PLU=ON  MANGANESE OR L16
L23         2050 SEA ABB=ON  PLU=ON  ATOMIC (W) (PERCENT? OR PT OR .%.)
L24        22736 SEA ABB=ON  PLU=ON  (5(W)60 OR 5(W)65)
L25         1818 SEA ABB=ON  PLU=ON  23 AND L24
L26            6 SEA ABB=ON  PLU=ON  L25 AND L18
                 D TI KWIC 1
L27         9950 SEA ABB=ON  PLU=ON  L18 AND L19
L28         5174 SEA ABB=ON  PLU=ON  L27 AND (L20 OR L21 OR L22)
L29            7 SEA ABB=ON  PLU=ON  L28 AND L23
                 D TI KWIC 1-4
                 E CATALYSTS/CT
                 E E3+ALL
L30       172743 SEA ABB=ON  PLU=ON  CATALYSTS+OLD,UF/CT
                 E FUEL CELLS/CT
                 E E3+ALL
L31        91748 SEA ABB=ON  PLU=ON  "FUEL CELLS"+OLD,UF/CT
L32          192 SEA ABB=ON  PLU=ON  L28 AND L30
L33           29 SEA ABB=ON  PLU=ON  L32 AND L31
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L34           1 SEA ABB=ON  PLU=ON  L33 AND L1
L35           0 SEA ABB=ON  PLU=ON  L33 AND L23
L36           0 SEA ABB=ON  PLU=ON  L32 AND L23
L37           0 SEA ABB=ON  PLU=ON  L33 AND L24
                SAVE TEMP L33 WEI291HCAP/A
L38        9035 SEA ABB=ON  PLU=ON  ELECTROCATALYST?
L39          20 SEA ABB=ON  PLU=ON  L38 AND L33
L40          29 SEA ABB=ON  PLU=ON  L39 OR L33

                SAVE TEMP L40 WEI291HCAP/A

     FILE 'COMPENDEX, INSPEC, ENERGY, SCISEARCH' ENTERED AT 10:47:29 ON 08 AUG
     2008
L41      194007 SEA ABB=ON  PLU=ON  PLATINUM OR L3
L42      243968 SEA ABB=ON  PLU=ON  INDIUM OR L6
L43        2545 SEA ABB=ON  PLU=ON  L41 AND L42
L44     1193749 SEA ABB=ON  PLU=ON  TUNGSTEN OR IRON OR MANGANESE
L45         374 SEA ABB=ON  PLU=ON  L43 AND L44
L46           3 SEA ABB=ON  PLU=ON  L45 AND L38
L47           3 SEA ABB=ON  PLU=ON  L45 AND FUEL CELL#
L48           5 SEA ABB=ON  PLU=ON  L46 OR L47
L49           0 SEA ABB=ON  PLU=ON  L45 AND L23
                D L48 IBIB AB 1-3
                D L47 1-3

     FILE 'STNGUIDE' ENTERED AT 10:54:19 ON 08 AUG 2008

     FILE 'COMPENDEX, INSPEC, ENERGY, SCISEARCH' ENTERED AT 11:07:07 ON 08 AUG
     2008
L50          31 SEA ABB=ON  PLU=ON  L45 AND CATALYST?
L51           2 SEA ABB=ON  PLU=ON  L50 AND (FUEL CELL#)
                D IBIB 1-2
                D AB 1-2
L52           0 SEA ABB=ON  PLU=ON  L50 AND L23
L53        5855 SEA ABB=ON  PLU=ON  CONCENTRAT? (2A) (PERCENT? OR PT)
L54           0 SEA ABB=ON  PLU=ON  L50 AND L53
L55           0 SEA ABB=ON  PLU=ON  L45 AND L53
                SAVE TEMP L51 WEI291MULTI/A

     FILE 'STNGUIDE' ENTERED AT 11:13:00 ON 08 AUG 2008
                D QUE L40
                D QUE L51

     FILE 'HCAPLUS, ENERGY, SCISEARCH' ENTERED AT 11:14:59 ON 08 AUG 2008
L56          31 DUP REM L40 L51 (0 DUPLICATES REMOVED)
                     ANSWERS '1-29' FROM FILE HCAPLUS
                     ANSWER '30' FROM FILE ENERGY
                     ANSWER '31' FROM FILE SCISEARCH
                D L56 1-29 IBIB ABS HITIND
                D L56 30-31 IBIB AB IND
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